

**WHAT IS CLAIMED IS:**

1. A method for providing printhead swath height measurement and compensation, comprising the steps of:

establishing a nominal printhead swath height to be associated with printheads of a particular type;

5       printing a swath using a first printhead of said particular type;

measuring a printhead swath height of said first printhead;

determining a difference between the measured printhead swath height of said first printhead and said nominal printhead swath height;

generating a printhead swath height correction value based on said difference;

10      and

storing said printhead swath height correction value in a printhead memory associated with said first printhead.

2. The method of claim 1, said method being effected during printhead manufacture.

3. The method of claim 1, said measuring step being effected, at least in part, by using a calibrated microscope having a digital image capture mechanism for capturing a magnified image of said swath.

4. The method of claim 1, wherein said measuring step is effected by using an optical scanner.

5. The method of claim 1, wherein said nominal printhead swath height is defined by an ideal nozzle pitch multiplied by a number N of nozzles in a columnar array of said first printhead.

6. The method of claim 1, wherein said printhead swath height correction value is used to modify a nominal media advance distance of an ink jet printer to establish a modified media advance distance.

7. The method of claim 1, wherein said printhead memory is formed on a substrate of said first printhead.

8. The method of claim 1, wherein said first printhead is mounted to an ink reservoir to form a unitary printhead cartridge.

9. The method of claim 8, wherein said printhead memory is mounted to said ink reservoir.

10. The method of claim 1, further comprising the step of retrieving said printhead swath height correction value from said printhead memory and using said printhead swath height correction value to modify at least one of an image data format and a nominal media advance distance of an ink jet printer to establish a modified media  
5 advance distance.

11. A method for providing printhead swath height measurement and compensation, comprising the steps of:

providing a printhead, said printhead including a printhead memory and a columnar array of N nozzles, individually identifiable as nozzle 1 to nozzle N;

5 printing a swath using at least nozzle 1 and nozzle N of said printhead to form a plurality of substantially parallel lines, including a first line printed by said nozzle 1 and an Nth line printed by said nozzle N;

measuring a printhead swath height of said printhead by measuring a distance between said first line and said Nth line;

10 determining a difference between the measured printhead swath height and a nominal printhead swath height;

generating a printhead swath height correction value based on said difference between said measured printhead swath height and said nominal printhead swath height; and

15 storing said printhead swath height correction value in said printhead memory.

12. The method of claim 11, said method being effected during manufacture of said first printhead.

13. The method of claim 12, said measuring step being effected, at least in part, by using a calibrated microscope having a digital image capture mechanism for capturing a magnified image of said swath.

14. The method of claim 12, wherein said measuring step is effected by using an optical scanner.

15. The method of claim 11, wherein said nominal printhead swath height is defined by an ideal nozzle pitch multiplied by (N).

16. The method of claim 11, wherein said printhead swath height correction value is used to modify a nominal media advance distance of an ink jet printer to establish a modified media advance distance.

17. The method of claim 16, wherein if said measured printhead swath height is greater than said nominal printhead swath height by a predetermined amount, then said modified media advance distance is established to be greater than said nominal media advance distance.

18. The method of claim 16, wherein if said measured printhead swath height is greater than said nominal printhead swath height by 10 microns or less, then a compensation factor used to modify said nominal media advance distance is set to zero.

19. The method of claim 16, wherein if said measured printhead swath height is greater than said nominal printhead swath height by between 10 microns and 20 microns, then a compensation factor used to modify said nominal media advance distance is set to +15 microns.

20. The method of claim 16, wherein if said measured printhead swath height is less than said nominal printhead swath height by a predetermined amount, then said modified media advance distance is established to be less than said nominal media advance distance.

21. The method of claim 16, wherein if said measured printhead swath height is less than said nominal printhead swath height by 10 microns or less, then a compensation factor used to modify said nominal media advance distance is set to zero.

22. The method of claim 16, wherein if said measured printhead swath height is less than said nominal printhead swath height by between 10 microns and 20 microns, then a compensation factor used to modify said nominal media advance distance is set to -15 microns.

23. The method of claim 11, wherein said measuring step is effected by printing said swath using said printhead and measuring a height of said swath using an optical scanner.

24. The method of claim 11, wherein said columnar array of N nozzles of said printhead jets a first color ink, said printhead including at least one other columnar array of nozzles for jetting ink of at least a second color ink different from said first color ink, said swath being printed using both said first color ink and said second color ink.

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25. The method of claim 11, wherein said measuring step is effected in an ink jet printer in which said printhead is installed.

26. An ink jet printer, comprising: /

a printhead, said printhead including a printhead memory having stored therein a printhead swath height correction value;

5 a feed roller unit including a feed roller controllable to index a print media sheet in a sheet feed direction by a plurality of media advance distances, including a nominal media advance distance; and

a controller communicatively coupled to said printhead and communicatively coupled to said feed roller unit, said controller executing process steps to retrieve said printhead swath height correction value from said printhead memory, said controller  
10 using said printhead swath height correction value to modify said nominal media

advance distance to establish a modified media advance distance for use with said feed roller unit when printing with said printhead.

27. The ink jet printer of claim 26, said printhead swath height correction value being based on a difference between a measured printhead swath height and a nominal printhead swath height, wherein if said measured printhead swath height is greater than said nominal printhead swath height by a predetermined amount, then said modified  
5 media advance distance is established to be greater than said nominal media advance distance.

28. The ink jet printer of claim 26, said printhead swath height correction value being based on a difference between a measured printhead swath height and a nominal printhead swath height, wherein if said measured printhead swath height is greater than said nominal printhead swath height by 10 microns or less, then a compensation factor  
5 used to modify said nominal media advance distance is set to zero.

29. The ink jet printer of claim 26, said printhead swath height correction value being based on a difference between a measured printhead swath height and a nominal printhead swath height, wherein if said measured printhead swath height is greater than said nominal printhead swath height by between 10 microns and 20 microns, then a  
5 compensation factor used to modify said nominal media advance distance is set to +15 microns.

30. The ink jet printer of claim 26, said printhead swath height correction value being based on a difference between a measured printhead swath height and a nominal printhead swath height, wherein if said measured printhead swath height is less than said nominal printhead swath height by a predetermined amount, then said modified media  
5 advance distance is established to be less than said nominal media advance distance.

31. The ink jet printer of claim 26, said printhead swath height correction value being based on a difference between a measured printhead swath height and a nominal printhead swath height, wherein if said measured printhead swath height is less than said

nominal printhead swath height by 10 microns or less, then a compensation factor used  
5 to modify said nominal media advance distance is set to zero.

32. The ink jet printer of claim 26, said printhead swath height correction value  
being based on a difference between a measured printhead swath height and a nominal  
printhead swath height, wherein if said measured printhead swath height is less than said  
nominal printhead swath height by between 10 microns and 20 microns, then a  
5 compensation factor used to modify said nominal media advance distance is set to -15  
microns.

33. A printing system, comprising: ✓  
a computer executing instructions for formatting image data; and  
an ink jet printer communicatively coupled to said computer, said ink jet printer  
including a controller communicatively coupled to a printhead, said printhead including  
5 a printhead memory having stored therein a printhead swath height correction value,  
said controller executing process steps to retrieve said printhead swath height correction  
value from said printhead memory and to forward said printhead swath height correction  
value to said computer, said computer modifying a format of said image data for use  
when printing with said printhead.